

LINEAR SEARCH PROGRAM IN C

http://www.tutorialspoint.com/data_structures_algorithms/linear_search_program_in_c.htm

Copyright © tutorialspoint.com

Here we present implementation of linear search in C programming language. The output of the program is given after the code.

Linear Search Program

```
#include <stdio.h>

#define MAX 20

// array of items on which linear search will be conducted.
int intArray[MAX] = {1,2,3,4,6,7,9,11,12,14,15,16,17,19,33,34,43,45,55,66};

void printline(int count){
    int i;

    for(i = 0;i <count-1;i++){
        printf("=");
    }

    printf("\n");
}

// this method makes a linear search.
int find(int data){

    int comparisons = 0;
    int index = -1;
    int i;

    // navigate through all items
    for(i = 0;i<MAX;i++){

        // count the comparisons made
        comparisons++;

        // if data found, break the loop

        if(data == intArray[i]){
            index = i;
            break;
        }

    }

    printf("Total comparisons made: %d", comparisons);
    return index;
}

void display(){
    int i;
    printf("[");

    // navigate through all items
    for(i = 0;i<MAX;i++){
        printf("%d ",intArray[i]);
    }

    printf("]\n");
}

main(){
```

```
printf("Input Array: ");
display();
println(50);

//find location of 1
int location = find(55);

// if element was found
if(location != -1)
    printf("\nElement found at location: %d" ,(location+1));
else
    printf("Element not found.");
}
```

Output

The output of the program should be –

```
Input Array: [1 2 3 4 6 7 9 11 12 14 15 16 17 19 33 34 43 45 55 66 ]
=====
Total comparisons made: 19
Element found at location: 19
```